

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BOARD OF PATENT APPEALS AND INTERFERENCES**

In re patent application of:
Campbell et al.

Atty. Docket No.: ARC920030088US1

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Examiner: Colan, Giovanna B.

For: SYSTEM AND METHOD FOR RETRIEVING DOCUMENTS OR SUB-DOCUMENTS
BASED ON EXAMPLES

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

APPELLANTS' REPLY BRIEF TO EXAMINER'S ANSWER

Sir:

Appellant respectfully replies to the Examiner's Answer, mailed July 16, 2007, in the following Brief.

BRIEF REPLY

I. STATUS OF CLAIMS

Claims 1-57, all the claims pending in the application, are under appeal.

The Examiner's Answer, mailed July 16, 2007, sustains the rejection of Claims 1-57 under 35 U.S.C. §103(a) as unpatentable over U.S. Patent No. 6,990,628 B1, to Palmer et al., hereinafter, Palmer, in view of U.S. Patent No. 7,039,641 B2 to Woo, hereinafter, Woo.

Appellants respectfully traverse these rejections based on the following discussion.

II. RESPONSE TO ANSWER'S ARGUMENTS

Summary of Invention: The invention provides a system, method, and program storage device that organizes and retrieves documents based on a query, whereby a few example documents are used as a basis for the query. Using the query, the invention, then uses a cascade of classifiers, which act as filters to filter the documents for relevancy against the particular query input. The invention performs an expectation maximum methodology at each level of the cascade of amplifiers in order to generate an output for each classifier indicating the relevancy of that particular classifier for the query. The invention arranges the output using a terminal classifier in such a way as to provide a user with the most relevant documents in a database, which match, or most closely match, the query. (Specification, page 20, lines 15-23).

Examiners Arguments

The Examiner continues to assert that the combination of Palmer in view of Woo discloses the claimed feature of "classifiers are operable to retrieve documents from said

database based solely on whether said documents are relevant to said query", by citing col.4, lines 11-19 of Palmer (Answer, page 13, lines 13-15) and improperly analogizes the filters of Woo to the classifiers of the invention (Answer, page 5, lines 1 and 18). However, Appellants respectfully submit that the user query of Palmer, cited by the Examiner, merely establishes a type of similarity information, i.e., click through similarity, which is used to calculate a similarity matrix for a Base Set of documents, and that Woo merely discloses the selection of a particular filter among a large number of filters for IP networks, which are based on the TCP/UDP/IP headers. (See, Discussion, below).

In the Answer, the Examiner notes that Appellants' main argument relies on the limitation "based solely on whether they [i.e., said documents] are relevant to the query input", and the Examiner has not found support for the limitation "based solely on whether they [i.e., said documents] are relevant to the query input". Applicants' respectfully point to "[t]he invention uses a hierarchical latent variable model and in contrast to conventional approaches the invention concentrates only on the class of interest. (emphasis added; Specification, page 12, lines1-3). Applicants respectfully assert that to one of ordinary skill in the art of semi-supervised query-by-example methodology for single class learning with few examples, the invention's concentration only on the class of interest logically implies retrieval of documents based solely on relevancy to the query input.

In the Answer, the Examiner asserts that both Palmer and Woo are reasonably pertinent to the problem with which the Appellants are concerned and in the field of the Appellant's endeavor, for example, classifying (col. 3, lines 1-3, "... in combination with a comparison of a

set of pre-classified training set of documents with a set of unclassified documents, to carry out classification ...", Palmer; and Abstract and col. 3, lines 27-29, "... identifying a filter used to classify a packet having at least one corresponding field of interest ...," Woo).

Appellants respectfully disagree the Palmer and Woo are reasonably pertinent to Appellants' problem and endeavor for the following reasons.

Brief Discussion of Palmer and Woo

1. Independent claims 1, 20, and 39

The user query cited by the Examiner at col. 7, lines 30-32 of Palmer describes a method of establishing a type of similarity information, i.e., click through similarity, which may be used to calculate a similarity matrix for a Base Set of documents.

Palmer discloses information that describes a succession of electronic documents retrieved or browsed by a particular user in an online session is known as "click through information" or simply "click through." User click through information is useful in determining the similarity of electronic documents. Referring to Fig. 1 of Palmer, click-through information 108 may be one source of similarity information. (col. 6, lines 38-44).

Palmer also discloses that when a user is browsing electronic documents in an online session, the user may be viewed as an editor of a directory of documents in the Base Set. The user may use a search engine to obtain a set of search results from the Base Set. The search results comprise a list of documents that contain the words in the query, and may comprise a brief summary or abstract of each document. Normally the list of documents includes a hyperlink to each document in the list. (col. 6, lines 45-52).

Palmer further discloses the user reads through the list of abstracts and selects documents

that appear to match the user's needs. The user may then click through to the document by selecting a hyperlink associated with the document. Assuming that users generally click through to documents that are judged to be useful, and will not spend time on useless documents, and assuming that the user has one particular need in mind at a time, then the subset of documents that receive a click through by a particular user within a particular time window can be considered Similar. (col. 6, lines 53-62).

Palmer further discloses user click through information may be gathered and used to calculate the similarity matrix W_{ij}^a . Assume that a hypertext document system includes a search engine and users who contact the search engine request electronic documents. A first user issues a query, and the search engine returns a set of document identifiers. (underlining highlights the alleged "inputting a query" feature of the present invention, which was cited by the Office Action and sustained by the Examiner's Answer) The user may perform one or more actions using the documents or the set of identifiers using a mouse or similar pointing device to select actions. The set of actions that are taken by the user is called a user-query session. (col. 7, lines 26-35).

Palmer continues to disclose at another time, a second user may create another user-query session. Assume the query of the second user is the same, and returns the same set of document identifiers. As a result, two different user sessions are created and stored for the same set of documents. (col. 7, lines 36-40).

Palmer further discloses in the preferred embodiment, the search engine records, for each user session, the identifiers that a user selects, and a time that the user spends viewing each selected document. This information may be used to create and store a document-by-session matrix, $S(i,j)$ The value of one entry $S(i,j)$ represents the interest that user j has shown in document I , which is a function of the time that the user has spent viewing the page, for example.

(col. 7, lines 42-51).

Palmer continues to disclose once the document-by-session matrix is constructed, each row of the matrix may be chosen as a feature vector of the document, and the similarity of a pair of documents based on their feature vectors is measured. The dot product of this vector pair, for example, could serve as the similarity between the two documents. This could be expressed as $W_{ij} = \sum_{k=1}^N S(i,k)S(j,k)$. (col. 7, line 62 to col.8, line 5).

In summary: The user query cited by the Examiner at col. 7, lines 30-32 describes a method of establishing a type of similarity information, i.e., click through similarity, which may be used to calculate a similarity matrix for a Base Set of documents.

From the discussion of Palmer above, it may be seen that Palmer does not disclose a system, method or program storage device for extracting information comprising inputting a query, searching a database of documents based on the query, and retrieving documents from the database based solely on whether the documents are relevant to the query, as recited in independent claims 1, 20, and 39.

In contrast, Palmer discloses multiple user queries that create multiple user query sessions, comprising user selection identifiers and a time, which the user spends viewing each selection. This information is used to create a document-by-session matrix, $S(i,j)$, where each row of the matrix corresponds to a feature vector of the selection, and the similarity of a pair of selections is a measure based on their feature vectors. For example, the dot product of this vector pair may serve as the measure of similarity between the two selections and may be expressed as $W_{ij} = \sum_{k=1}^N S(i,k)S(j,k)$, the similarity matrix. The user queries of Palmer are not used to retrieve documents from a database, based solely on whether the documents are relevant to the query, as claimed by the present invention in claims 1, 20, and 39, but are used to establish

a type of similarity information, i.e., click through similarity, which may be used to calculate a similarity matrix for a Base Set of documents.

The Answer continues to assert, in relevant part, that Woo discloses filters that correspond to the features of "classifiers", claimed by the present invention. (footnote 1, page 5 and footnote 2, page 6 of the Examiner's Answer).

Applicants respectfully submit that the filters of Woo do not correspond to the feature of classifiers, claimed by the present invention, for the following reasons.

Woo discloses that filters for IP networks are typically based on the TCP/UDP/IP headers and their constructions are fairly standardized. (col. 1, lines 26-28).

Woo also discloses that a basic filter f is an ordered pair (b, m) of binary strings of equal length, where b is the pattern and m , the mask, indicates the significant bits b for matching purposes. For example, the basic filter $(1001, 1010)$ means that the first and third (counting left to right) bits of "1001" are significant for matching purposes. Equivalently, a basic filter can be represented as a ternary string in the alphabet $\{0, 1, *\}$. Specifically, all the insignificant bits in b are replaced by "*", the don't care bit. The example above can be denoted as "1*0*". (col. 5, lines 7-16).

Woo further discloses a binary string t matches a basic filter $f = (b, m)$ if t and b are of equal length and are identical in all significant bit positions as indicated by m . For example, "1100" matches the basic filter "1*0*". (col. 5, lines 27-30).

Woo discloses that a basic filter is equivalent to a 1-dimensional filter. A k -dimensional filter F is a k -tuple of basic filters. A k -dimensional filter table of size N is an ordered sequence of N k -dimensional filters. Such a filter table, FT , is typically denoted by the sequence F_1, F_2, \dots

F_N . The size of the filter table, FT, is denoted by $|FT|$, i.e., $|F_1, F_2, \dots, F_N| = N$. (col. 5, lines 31-36).

Woo also discloses that where t is a k -tuple (t_1, \dots, t_k) of binary strings, and F a k -dimensional filter denoted by (f_1, \dots, f_k) . Binary string t is said to match F if for all $1 \leq j \leq k$, t_j matches f_j . In this case, F is called a matching filter for t . (col. 5, lines 37-40).

Woo continues to disclose that an IP packet filter table can potentially include any number of dimensions. Two forms are more popular: (1) 2-dimensional table with source and destination IP addresses; and (2) 5-dimensional table with source and destination IP addresses, protocol number source and destination TCP/UDP port numbers. (col. 6, lines 46-51).

In summary: From the discussion of Woo above, it may be seen that Woo does not disclose a method or system for extracting information comprising inputting a query, searching a database of documents based on the query, and retrieving documents from the database based solely on whether the documents are relevant to the query using a plurality of classifiers, as recited in claims 1, 20, and 39.

In contrast, Woo discloses finding an applicable filter when a relatively large number of filters are employed in a packet classification system. Applicants respectfully submit that a packet is not a document. Furthermore, if classifiers correspond to filters, as alleged by the Examiner's Answer, what corresponds to the documents being retrieved by these classifying filters?

Furthermore, Appellants respectfully submit that Woo does not cure the deficiencies of Palmer. Nowhere does Woo disclose, teach or suggest the feature of a method or system for extracting information comprising inputting a query, searching a database of documents based on the query, and retrieving documents from the database based solely on whether the documents

are relevant to the query.

The Examiner continues to assert that a *prima facie* case of obviousness has been established. Appellants respectfully disagree for the following reasons.

If, as respectfully argued by Appellants above, the user query of Palmer is not analogous to the input query of the invention and the filter selection of Woo is not analogous to "classifiers [are] operable to retrieve documents from said database solely on whether said documents are relevant to said query", then the combination of the subject matters of Palmer and Woo can not be analogous to the invention.

2. Dependent claims 2, 21, and 40

Regarding dependent claims 2, 21, and 40 the Examiner's Answer states that Palmer/Woo discloses a program storage device, wherein each classifier accepts an input distribution of data points and transforms said input distribution to an output distribution of said data points. (Examiner's Answer, page 6).

From the discussion above as relates to the rejection of independent claims 1, 20, and 39 over Palmer, Applicants respectfully submit that Palmer does not disclose a method or system for extracting information comprising inputting a query, searching a database of documents based on the query, and retrieving documents from the database based solely on whether the documents are relevant to the query, as recited in claims 1, 20, and 39.

From the discussion above as relates to the rejection of independent claims 1, 20, and 39 over Woo, Applicants respectfully submit that Woo does not disclose a method or system for extracting information comprising inputting a query, searching a database of documents based on

the query, and retrieving documents from the database based solely on whether the documents are relevant to the query using a plurality of classifiers, as recited in claims 1, 20, and 39.

Furthermore, Woo does not cure the deficiencies of Palmer. Nowhere does Woo disclose, teach or suggest the feature of a method or system for extracting information comprising inputting a query, searching a database of documents based on the query, and retrieving documents from the database based solely on whether the documents are relevant to the query, as recited in claims 1, 20, and 39.

Accordingly, Palmer and Woo, either independently or in combination, do not render obvious the subject matter of independent claims 1, 20, and 39 and dependent claims 2, 21, and 40 under 35 U.S.C. §103(a). In view of the foregoing, the Board is respectfully requested to reconsider and withdraw the rejection to dependent claims 2, 21, and 40.

3. Dependent claims 3, 22, and 41

Regarding dependent claims 3, 22, and 41 the Examiner's Answer states that Palmer/Woo discloses a program storage device, wherein each classifier is trained by weighing training data points at each classifier layer in said cascade by an output distribution generated by each previous classifier layer, and wherein weights of said training data points of said first classifier layer are uniform. (Examiner's Answer, pages 6 and 7).

From the discussion above as relates to the rejection of independent claims 1, 20, and 39 over Palmer, Applicants respectfully submit that Palmer does not disclose a method or system for extracting information comprising inputting a query, searching a database of documents based on the query, and retrieving documents from the database based solely on whether the documents are relevant to the query, as recited in claims 1, 20, and 39.

From the discussion above as relates to the rejection of independent claims 1, 20, and 39 over Woo, Applicants respectfully submit that Woo does not disclose a method or system for extracting information comprising inputting a query, searching a database of documents based on the query, and retrieving documents from the database based solely on whether the documents are relevant to the query using a plurality of classifiers, as recited in claims 1, 20, and 39.

Furthermore, Woo does not cure the deficiencies of Palmer. Nowhere does Woo disclose, teach or suggest the feature of a method or system for extracting information comprising inputting a query, searching a database of documents based on the query, and retrieving documents from the database based solely on whether the documents are relevant to the query, as recited in claims 1, 20, and 39.

Accordingly, Palmer and Woo, either independently or in combination, do not render obvious the subject matter of independent claims 1, 20, and 39 and dependent claims 3, 22, and 41 under 35 U.S.C. §103(a). In view of the foregoing, the Board is respectfully requested to reconsider and withdraw the rejection to dependent claims 3, 22, and 41.

4. Dependent claims 4, 23, and 42

Regarding dependent claims 4, 23, and 42 the Examiner's Answer states that Palmer/Woo discloses a program storage device, wherein each classifier is trained according to said query input. (Examiner's Answer, page 7).

From the discussion above as relates to the rejection of independent claims 1, 20, and 39 over Palmer, Applicants respectfully submit that Palmer does not disclose a method or system for extracting information comprising inputting a query, searching a database of documents based on the query, and retrieving documents from the database based solely on whether the

documents are relevant to the query, as recited in claims 1, 20, and 39.

From the discussion above as relates to the rejection of independent claims 1, 20, and 39 over Woo, Applicants respectfully submit that Woo does not disclose a method or system for extracting information comprising inputting a query, searching a database of documents based on the query, and retrieving documents from the database based solely on whether the documents are relevant to the query using a plurality of classifiers, as recited in claims 1, 20, and 39.

Furthermore, Woo does not cure the deficiencies of Palmer. Nowhere does Woo disclose, teach or suggest the feature of a method or system for extracting information comprising inputting a query, searching a database of documents based on the query, and retrieving documents from the database based solely on whether the documents are relevant to the query, as recited in claims 1, 20, and 39.

Accordingly, Palmer and Woo, either independently or in combination, do not render obvious the subject matter of independent claims 1, 20, and 39 and dependent claims 4, 23, and 42 under 35 U.S.C. §103(a). In view of the foregoing, the Board is respectfully requested to reconsider and withdraw the rejection to dependent claims 4, 23, and 42.

5. Dependent claims 5, 24, and 43

Regarding dependent claims 5, 24, and 43 the Examiner's Answer states that Palmer/Woo discloses a program storage device, wherein said query input is based on a number of example documents. (Examiner's Answer, page 7).

From the discussion above as relates to the rejection of independent claims 1, 20, and 39 over Palmer, Applicants respectfully submit that Palmer does not disclose a method or system for extracting information comprising inputting a query, searching a database of documents based on the query, and retrieving documents from the database based solely on whether the

documents are relevant to the query, as recited in claims 1, 20, and 39.

From the discussion above as relates to the rejection of independent claims 1, 20, and 39 over Woo, Applicants respectfully submit that Woo does not disclose a method or system for extracting information comprising inputting a query, searching a database of documents based on the query, and retrieving documents from the database based solely on whether the documents are relevant to the query using a plurality of classifiers, as recited in claims 1, 20, and 39.

Furthermore, Woo does not cure the deficiencies of Palmer. Nowhere does Woo disclose, teach or suggest the feature of a method or system for extracting information comprising inputting a query, searching a database of documents based on the query, and retrieving documents from the database based solely on whether the documents are relevant to the query, as recited in claims 1, 20, and 39.

Accordingly, Palmer and Woo, either independently or in combination, do not render obvious the subject matter of independent claims 1, 20, and 39 and dependent claims 5, 24, and 43 under 35 U.S.C. §103(a). In view of the foregoing, the Board is respectfully requested to reconsider and withdraw the rejection to dependent claims 5, 24, and 43.

6. Dependent claims 6, 25, and 44

Regarding dependent claims 6, 25, and 44 the Examiner's Answer states that Palmer/Woo discloses a program storage device, wherein said document comprises data points comprising feature vectors representing any portion of said document. (Examiner's Answer, page 8).

From the discussion above as relates to the rejection of independent claims 1, 20, and 39 over Palmer, Applicants respectfully submit that Palmer does not disclose a method or system for extracting information comprising inputting a query, searching a database of documents

based on the query, and retrieving documents from the database based solely on whether the documents are relevant to the query, as recited in claims 1, 20, and 39.

From the discussion above as relates to the rejection of independent claims 1, 20, and 39 over Woo, Applicants respectfully submit that Woo does not disclose a method or system for extracting information comprising inputting a query, searching a database of documents based on the query, and retrieving documents from the database based solely on whether the documents are relevant to the query using a plurality of classifiers, as recited in claims 1, 20, and 39.

Furthermore, Woo does not cure the deficiencies of Palmer. Nowhere does Woo disclose, teach or suggest the feature of a method or system for extracting information comprising inputting a query, searching a database of documents based on the query, and retrieving documents from the database based solely on whether the documents are relevant to the query, as recited in claims 1, 20, and 39.

Accordingly, Palmer and Woo, either independently or in combination, do not render obvious the subject matter of independent claims 1, 20, and 39 and dependent claims 6, 25, and 44 under 35 U.S.C. §103(a). In view of the foregoing, the Board is respectfully requested to reconsider and withdraw the rejection to dependent claims 6, 25, and 44.

7. Dependent claims 7, 26, and 45

Regarding dependent claims 7, 26, and 45 the Examiner's Answer states that Palmer/Woo discloses a program storage device, wherein said documents comprise a file format capable of being represented by said feature vectors. (Examiner' Answer, page 8).

From the discussion above as relates to the rejection of independent claims 1, 20, and 39 over Palmer, Applicants respectfully submit that Palmer does not disclose a method or system

for extracting information comprising inputting a query, searching a database of documents based on the query, and retrieving documents from the database based solely on whether the documents are relevant to the query, as recited in claims 1, 20, and 39.

From the discussion above as relates to the rejection of independent claims 1, 20, and 39 over Woo, Applicants respectfully submit that Woo does not disclose a method or system for extracting information comprising inputting a query, searching a database of documents based on the query, and retrieving documents from the database based solely on whether the documents are relevant to the query using a plurality of classifiers, as recited in claims 1, 20, and 39.

Furthermore, Woo does not cure the deficiencies of Palmer. Nowhere does Woo disclose, teach or suggest the feature of a method or system for extracting information comprising inputting a query, searching a database of documents based on the query, and retrieving documents from the database based solely on whether the documents are relevant to the query, as recited in claims 1, 20, and 39.

Accordingly, Palmer and Woo, either independently or in combination, do not render obvious the subject matter of independent claims 1, 20, and 39 and dependent claims 7, 26, and 45 under 35 U.S.C. §103(a). In view of the foregoing, the Board is respectfully requested to reconsider and withdraw the rejection to dependent claims 7, 26, and 45.

8. Dependent claims 8, 27, and 46

Regarding dependent claims 8, 27, and 46 the Examiner's Answer states that Palmer/Woo discloses a program storage device, wherein said documents comprise any of text files, images, web pages, video files, and audio files. (Examiner's Answer, pages 8 and 9).

From the discussion above as relates to the rejection of independent claims 1, 20, and 39

over Palmer, Applicants respectfully submit that Palmer does not disclose a method or system for extracting information comprising inputting a query, searching a database of documents based on the query, and retrieving documents from the database based solely on whether the documents are relevant to the query, as recited in claims 1, 20, and 39.

From the discussion above as relates to the rejection of independent claims 1, 20, and 39 over Woo, Applicants respectfully submit that Woo does not disclose a method or system for extracting information comprising inputting a query, searching a database of documents based on the query, and retrieving documents from the database based solely on whether the documents are relevant to the query using a plurality of classifiers, as recited in claims 1, 20, and 39.

Furthermore, Woo does not cure the deficiencies of Palmer. Nowhere does Woo disclose, teach or suggest the feature of a method or system for extracting information comprising inputting a query, searching a database of documents based on the query, and retrieving documents from the database based solely on whether the documents are relevant to the query, as recited in claims 1, 20, and 39.

Accordingly, Palmer and Woo, either independently or in combination, do not render obvious the subject matter of independent claims 1, 20, and 39 and dependent claims 8, 27, and 46 under 35 U.S.C. §103(a). In view of the foregoing, the Board is respectfully requested to reconsider and withdraw the rejection to dependent claims 8, 27, and 46.

9. Dependent claims 9, 28, and 47

Regarding dependent claims 9, 28, and 47 the Examiner's Answer states that Palmer/Woo discloses a program storage device, wherein a classifier at each layer in said hierarchical cascade is trained for each layer with an expectation maximization methodology that

maximizes a likelihood of a joint distribution of said training data points and latent variables.
(Examiner's Answer, page 9).

From the discussion above as relates to the rejection of independent claims 1, 20, and 39 over Palmer, Applicants respectfully submit that Palmer does not disclose a method or system for extracting information comprising inputting a query, searching a database of documents based on the query, and retrieving documents from the database based solely on whether the documents are relevant to the query, as recited in claims 1, 20, and 39.

From the discussion above as relates to the rejection of independent claims 1, 20, and 39 over Woo, Applicants respectfully submit that Woo does not disclose a method or system for extracting information comprising inputting a query, searching a database of documents based on the query, and retrieving documents from the database based solely on whether the documents are relevant to the query using a plurality of classifiers, as recited in claims 1, 20, and 39.

Furthermore, Woo does not cure the deficiencies of Palmer. Nowhere does Woo disclose, teach or suggest the feature of a method or system for extracting information comprising inputting a query, searching a database of documents based on the query, and retrieving documents from the database based solely on whether the documents are relevant to the query, as recited in claims 1, 20, and 39.

Accordingly, Palmer and Woo, either independently or in combination, do not render obvious the subject matter of independent claims 1, 20, and 39 and dependent claims 9, 28, and 47 under 35 U.S.C. §103(a). In view of the foregoing, the Board is respectfully requested to reconsider and withdraw the rejection to dependent claims 9, 28, and 47.

10. Dependent claims 10, 29, and 48

Regarding dependent claims 10, 29, and 48 the Examiner's Answer states that Palmer/Woo discloses a program storage device, wherein each layer of said cascade of classifiers is trained in succession from a previous layer by said expectation maximization methodology, wherein said output distribution is used as an input distribution for a successive layer. (Examiner's Answer, page 9).

From the discussion above as relates to the rejection of independent claims 1, 20, and 39 over Palmer, Applicants respectfully submit that Palmer does not disclose a method or system for extracting information comprising inputting a query, searching a database of documents based on the query, and retrieving documents from the database based solely on whether the documents are relevant to the query, as recited in claims 1, 20, and 39.

From the discussion above as relates to the rejection of independent claims 1, 20, and 39 over Woo, Applicants respectfully submit that Woo does not disclose a method or system for extracting information comprising inputting a query, searching a database of documents based on the query, and retrieving documents from the database based solely on whether the documents are relevant to the query using a plurality of classifiers, as recited in claims 1, 20, and 39.

Furthermore, Woo does not cure the deficiencies of Palmer. Nowhere does Woo disclose, teach or suggest the feature of a method or system for extracting information comprising inputting a query, searching a database of documents based on the query, and retrieving documents from the database based solely on whether the documents are relevant to the query, as recited in claims 1, 20, and 39.

Accordingly, Palmer and Woo, either independently or in combination, do not render obvious the subject matter of independent claims 1, 20, and 39 and dependent claims 10, 29, and 48 under 35 U.S.C. §103(a). In view of the foregoing, the Board is respectfully requested to

reconsider and withdraw the rejection to dependent claims 10, 29, and 48.

11. Dependent claims 11, 30, and 49

Regarding dependent claims 11, 30, and 49 the Examiner's Answer states that Palmer/Woo discloses a program storage device, wherein each layer of said cascade of classifiers is trained by successive iterations of said expectation maximization methodology until a convergence of parameter values associated with said output distribution of each layer occurs in succession. (Examiner's Answer, page 9).

From the discussion above as relates to the rejection of independent claims 1, 20, and 39 over Palmer, Applicants respectfully submit that Palmer does not disclose a method or system for extracting information comprising inputting a query, searching a database of documents based on the query, and retrieving documents from the database based solely on whether the documents are relevant to the query, as recited in claims 1, 20, and 39.

From the discussion above as relates to the rejection of independent claims 1, 20, and 39 over Woo, Applicants respectfully submit that Woo does not disclose a method or system for extracting information comprising inputting a query, searching a database of documents based on the query, and retrieving documents from the database based solely on whether the documents are relevant to the query using a plurality of classifiers, as recited in claims 1, 20, and 39.

Furthermore, Woo does not cure the deficiencies of Palmer. Nowhere does Woo disclose, teach or suggest the feature of a method or system for extracting information comprising inputting a query, searching a database of documents based on the query, and retrieving documents from the database based solely on whether the documents are relevant to the query, as recited in claims 1, 20, and 39.

Accordingly, Palmer and Woo, either independently or in combination, do not render obvious the subject matter of independent claims 1, 20, and 39 and dependent claims 11, 30, and 49 under 35 U.S.C. §103(a). In view of the foregoing, the Board is respectfully requested to reconsider and withdraw the rejection to dependent claims 11, 30, and 49.

12. Dependent claims 12, 31, and 50

Regarding dependent claims 12, 31, and 50 the Examiner's Answer states that Palmer/Woo discloses a program storage device, wherein said successive iterations comprise a fixed number of iterations. (Examiner's Answer, page 10).

From the discussion above as relates to the rejection of independent claims 1, 20, and 39 over Palmer, Applicants respectfully submit that Palmer does not disclose a method or system for extracting information comprising inputting a query, searching a database of documents based on the query, and retrieving documents from the database based solely on whether the documents are relevant to the query, as recited in claims 1, 20, and 39.

From the discussion above as relates to the rejection of independent claims 1, 20, and 39 over Woo, Applicants respectfully submit that Woo does not disclose a method or system for extracting information comprising inputting a query, searching a database of documents based on the query, and retrieving documents from the database based solely on whether the documents are relevant to the query using a plurality of classifiers, as recited in claims 1, 20, and 39.

Furthermore, Woo does not cure the deficiencies of Palmer. Nowhere does Woo disclose, teach or suggest the feature of a method or system for extracting information comprising inputting a query, searching a database of documents based on the query, and retrieving documents from the database based solely on whether the documents are relevant to

the query, as recited in claims 1, 20, and 39.

Accordingly, Palmer and Woo, either independently or in combination, do not render obvious the subject matter of independent claims 1, 20, and 39 and dependent claims 12, 31, and 50 under 35 U.S.C. §103(a). In view of the foregoing, the Board is respectfully requested to reconsider and withdraw the rejection to dependent claims 12, 31, and 50.

13. Dependent claims 13, 32, and 51

Regarding dependent claims 13, 32, and 51 the Examiner's Answer states that Palmer/Woo discloses a program storage device, wherein all layers of said cascade of classifiers are trained by successive iterations of said expectation maximization methodology until a convergence of parameter values associated with output distributions of all layers occurs. (Examiner's Answer, page 10).

From the discussion above as relates to the rejection of independent claims 1, 20, and 39 over Palmer, Applicants respectfully submit that Palmer does not disclose a method or system for extracting information comprising inputting a query, searching a database of documents based on the query, and retrieving documents from the database based solely on whether the documents are relevant to the query, as recited in claims 1, 20, and 39.

From the discussion above as relates to the rejection of independent claims 1, 20, and 39 over Woo, Applicants respectfully submit that Woo does not disclose a method or system for extracting information comprising inputting a query, searching a database of documents based on the query, and retrieving documents from the database based solely on whether the documents are relevant to the query using a plurality of classifiers, as recited in claims 1, 20, and 39.

Furthermore, Woo does not cure the deficiencies of Palmer. Nowhere does Woo

disclose, teach or suggest the feature of a method or system for extracting information comprising inputting a query, searching a database of documents based on the query, and retrieving documents from the database based solely on whether the documents are relevant to the query, as recited in claims 1, 20, and 39.

Accordingly, Palmer and Woo, either independently or in combination, do not render obvious the subject matter of independent claims 1, 20, and 39 and dependent claims 13, 32, and 51 under 35 U.S.C. §103(a). In view of the foregoing, the Board is respectfully requested to reconsider and withdraw the rejection to dependent claims 13, 32, and 51.

14. Dependent claims 14, 33, and 52

Regarding dependent claims 14, 33, and 52 the Examiner's Answer states that Palmer/Woo discloses a program storage device, wherein said successive iterations comprise a fixed number of iterations. (Examiner's Answer, page 11).

From the discussion above as relates to the rejection of independent claims 1, 20, and 39 over Palmer, Applicants respectfully submit that Palmer does not disclose a method or system for extracting information comprising inputting a query, searching a database of documents based on the query, and retrieving documents from the database based solely on whether the documents are relevant to the query, as recited in claims 1, 20, and 39.

From the discussion above as relates to the rejection of independent claims 1, 20, and 39 over Woo, Applicants respectfully submit that Woo does not disclose a method or system for extracting information comprising inputting a query, searching a database of documents based on the query, and retrieving documents from the database based solely on whether the documents are relevant to the query using a plurality of classifiers, as recited in claims 1, 20, and 39.

Furthermore, Woo does not cure the deficiencies of Palmer. Nowhere does Woo disclose, teach or suggest the feature of a method or system for extracting information comprising inputting a query, searching a database of documents based on the query, and retrieving documents from the database based solely on whether the documents are relevant to the query, as recited in claims 1, 20, and 39.

Accordingly, Palmer and Woo, either independently or in combination, do not render obvious the subject matter of independent claims 1, 20, and 39 and dependent claims 14, 33, and 52 under 35 U.S.C. §103(a). In view of the foregoing, the Board is respectfully requested to reconsider and withdraw the rejection to dependent claims 14, 33, and 52.

15. Dependent claims 15, 34, and 53

Regarding dependent claims 15, 34, and 53 the Examiner's Answer states that Palmer/Woo discloses a program storage device, wherein each classifier layer generates a relevancy score associated with each data point, wherein said relevancy score comprises an indication of how closely matched said data point is to said example documents. (Examiner's Answer, page 11).

From the discussion above as relates to the rejection of independent claims 1, 20, and 39 over Palmer, Applicants respectfully submit that Palmer does not disclose a method or system for extracting information comprising inputting a query, searching a database of documents based on the query, and retrieving documents from the database based solely on whether the documents are relevant to the query, as recited in claims 1, 20, and 39.

From the discussion above as relates to the rejection of independent claims 1, 20, and 39 over Woo, Applicants respectfully submit that Woo does not disclose a method or system for

extracting information comprising inputting a query, searching a database of documents based on the query, and retrieving documents from the database based solely on whether the documents are relevant to the query using a plurality of classifiers, as recited in claims 1, 20, and 39.

Furthermore, Woo does not cure the deficiencies of Palmer. Nowhere does Woo disclose, teach or suggest the feature of a method or system for extracting information comprising inputting a query, searching a database of documents based on the query, and retrieving documents from the database based solely on whether the documents are relevant to the query, as recited in claims 1, 20, and 39.

Accordingly, Palmer and Woo, either independently or in combination, do not render obvious the subject matter of independent claims 1, 20, and 39 and dependent claims 15, 34, and 53 under 35 U.S.C. §103(a). In view of the foregoing, the Board is respectfully requested to reconsider and withdraw the rejection to dependent claims 15, 34, and 53.

16. Dependent claims 16, 35, and 54

Regarding dependent claims 16, 35, and 54 the Examiner's Answer states that Palmer/Woo discloses a program storage device, wherein each classifier layer generates a relevancy score associated with said document, wherein said relevancy score is calculated from relevancy scores of individual data points within said document. (Examiner's Answer, page 11).

From the discussion above as relates to the rejection of independent claims 1, 20, and 39 over Palmer, Applicants respectfully submit that Palmer does not disclose a method or system for extracting information comprising inputting a query, searching a database of documents based on the query, and retrieving documents from the database based solely on whether the documents are relevant to the query, as recited in claims 1, 20, and 39.

From the discussion above as relates to the rejection of independent claims 1, 20, and 39 over Woo, Applicants respectfully submit that Woo does not disclose a method or system for extracting information comprising inputting a query, searching a database of documents based on the query, and retrieving documents from the database based solely on whether the documents are relevant to the query using a plurality of classifiers, as recited in claims 1, 20, and 39.

Furthermore, Woo does not cure the deficiencies of Palmer. Nowhere does Woo disclose, teach or suggest the feature of a method or system for extracting information comprising inputting a query, searching a database of documents based on the query, and retrieving documents from the database based solely on whether the documents are relevant to the query, as recited in claims 1, 20, and 39.

Accordingly, Palmer and Woo, either independently or in combination, do not render obvious the subject matter of independent claims 1, 20, and 39 and dependent claims 16, 35, and 54 under 35 U.S.C. §103(a). In view of the foregoing, the Board is respectfully requested to reconsider and withdraw the rejection to dependent claims 16, 35, and 54.

17. Dependent claims 17, 36, and 55

Regarding dependent claims 17, 36, and 55 the Examiner's Answer states that Palmer/Woo discloses a program storage device, wherein said terminal classifier generates a relevancy score associated with each data point, wherein said relevancy score comprises an indication of how closely matched said data point is to said example document. (Examiner's Answer, pages 11 and 12).

From the discussion above as relates to the rejection of independent claims 1, 20, and 39 over Palmer, Applicants respectfully submit that Palmer does not disclose a method or system

for extracting information comprising inputting a query, searching a database of documents based on the query, and retrieving documents from the database based solely on whether the documents are relevant to the query, as recited in claims 1, 20, and 39.

From the discussion above as relates to the rejection of independent claims 1, 20, and 39 over Woo, Applicants respectfully submit that Woo does not disclose a method or system for extracting information comprising inputting a query, searching a database of documents based on the query, and retrieving documents from the database based solely on whether the documents are relevant to the query using a plurality of classifiers, as recited in claims 1, 20, and 39.

Furthermore, Woo does not cure the deficiencies of Palmer. Nowhere does Woo disclose, teach or suggest the feature of a method or system for extracting information comprising inputting a query, searching a database of documents based on the query, and retrieving documents from the database based solely on whether the documents are relevant to the query, as recited in claims 1, 20, and 39.

Accordingly, Palmer and Woo, either independently or in combination, do not render obvious the subject matter of independent claims 1, 20, and 39 and dependent claims 17, 36, and 55 under 35 U.S.C. §103(a). In view of the foregoing, the Board is respectfully requested to reconsider and withdraw the rejection to dependent claims 17, 36, and 55.

18. Dependent claims 18, 37, and 56

Regarding dependent claims 18, 37, and 56 the Examiner's Answer states that Palmer/Woo discloses a program storage device, wherein said terminal classifier generates a relevancy score associated with a document, wherein said relevancy score is calculated from relevancy scores of individual data points within said document. (Examiner's Answer, page 12).

From the discussion above as relates to the rejection of independent claims 1, 20, and 39 over Palmer, Applicants respectfully submit that Palmer does not disclose a method or system for extracting information comprising inputting a query, searching a database of documents based on the query, and retrieving documents from the database based solely on whether the documents are relevant to the query, as recited in claims 1, 20, and 39.

From the discussion above as relates to the rejection of independent claims 1, 20, and 39 over Woo, Applicants respectfully submit that Woo does not disclose a method or system for extracting information comprising inputting a query, searching a database of documents based on the query, and retrieving documents from the database based solely on whether the documents are relevant to the query using a plurality of classifiers, as recited in claims 1, 20, and 39.

Furthermore, Woo does not cure the deficiencies of Palmer. Nowhere does Woo disclose, teach or suggest the feature of a method or system for extracting information comprising inputting a query, searching a database of documents based on the query, and retrieving documents from the database based solely on whether the documents are relevant to the query, as recited in claims 1, 20, and 39.

Accordingly, Palmer and Woo, either independently or in combination, do not render obvious the subject matter of independent claims 1, 20, and 39 and dependent claims 18, 37, and 56 under 35 U.S.C. §103(a). In view of the foregoing, the Board is respectfully requested to reconsider and withdraw the rejection to dependent claims 18, 37, and 56.

19. Dependent claims 19, 38, and 57

Regarding dependent claims 19, 38, and 57 the Examiner's Answer states that Palmer/Woo discloses a program storage device, wherein features of said feature vectors

comprise words within a range of words located proximate to entries of interest in said document. (Examiner's Answer, page 12).

From the discussion above as relates to the rejection of independent claims 1, 20, and 39 over Palmer, Applicants respectfully submit that Palmer does not disclose a method or system for extracting information comprising inputting a query, searching a database of documents based on the query, and retrieving documents from the database based solely on whether the documents are relevant to the query, as recited in claims 1, 20, and 39.

From the discussion above as relates to the rejection of independent claims 1, 20, and 39 over Woo, Applicants respectfully submit that Woo does not disclose a method or system for extracting information comprising inputting a query, searching a database of documents based on the query, and retrieving documents from the database based solely on whether the documents are relevant to the query using a plurality of classifiers, as recited in claims 1, 20, and 39.

Furthermore, Woo does not cure the deficiencies of Palmer. Nowhere does Woo disclose, teach or suggest the feature of a method or system for extracting information comprising inputting a query, searching a database of documents based on the query, and retrieving documents from the database based solely on whether the documents are relevant to the query, as recited in claims 1, 20, and 39.

Accordingly, Palmer and Woo, either independently or in combination, do not render obvious the subject matter of independent claims 1, 20, and 39 and dependent claims 19, 38, and 57 under 35 U.S.C. §103(a). In view of the foregoing, the Board is respectfully requested to reconsider and withdraw the rejection to dependent claims 19, 38, and 57.

III. CONCLUSION

In view of the foregoing, the Appellants respectfully submit that the Answer's continued assertion of the cited prior art references of Palmer and Woo, do not disclose, teach or suggest the features defined by independent claims 1, 20, and 39, and as such, claims 1, 20, and 39 are patentably distinct over Palmer and Woo, either individually or in combination. Furthermore, dependent claims 2-19, 21-38, and 40-57 are similarly patentably distinct over Palmer and Woo, either individually or in combination. Thus, Appellants respectfully request that the Board reconsider and withdraw the rejections of claims 1-57 and pass these claims to issue.

Please charge any deficiencies and credit any overpayments to Attorney's Deposit Account Number 09-0441.

Respectfully submitted,

Date: September 14, 2007

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